REMARKS/ARGUMENTS

These remarks are made in response to the Office Action of May 25, 2007 (Office Action). This response is filed with a Petition for Two-Month Extension of Time. The Examiner is expressly authorized to charge any fees to Deposit Account No. 50-0951.

In the Office Action, Claims 12-31 were rejected under 35 U.S.C. § 101. Claims 12-19 were rejected under 35 U.S.C. § 112, second paragraph. Claims 1, 2, 4-8, 10, 20, 21, 23-27, 29, and 31 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 6,122,664 to Boukobza (hereinafter Boukobza). Claims 3, 16, 17, 19, and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Boukobza in view of U.S. Patent 6,681,423 to Putzolu (hereinafter Putzolu). Claims 12-5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,812,780 to Chen, *et al.* (hereinafter Chen) in view of Putzolu. Claims 9, 11, 28, and 30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Boukobza in view of Chen. Claim 18 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Boukobza and Putzolu in further view of Chen.

Amendments to the Claims

Although Applicants respectfully disagree with the rejections asserted in the Office Action based on the cited references, Applicants nonetheless have amended the claims so as to expedite prosecution by further emphasizing certain aspects in the claims. Applicants respectfully assert, however, that the amendments should not be interpreted as the surrender of any subject matter. Applicants are not conceding by these amendments that any previously submitted claims are not patentable over the references of record. Applicants' present claim amendments are only submitted for purposes of facilitating expeditious prosecution of the present Application. Accordingly, Applicants reserve the right to pursue any previously submitted claims in one or more continuation and/or divisional patent applications.

As of this Amendment, independent claims 1, 12, 16, 20, and 31 have been amended to emphasize certain aspects of the ghost agent in the claims and to differentiate the claimed ghost agents from the autonomous agents disclosed in Boukobza and the mobile agents disclosed in Putzolu. In particular, the independent claims have been amended to emphasize that a ghost agent associates with a host, and in response to a host moving from a first grid to a second grid, the ghost agent also moves from a first grid to a second grid, copying the actions of the associated host. Dependent Claims 6, 7, 10, 14, 15, 17-19, and 23-30 have also been amended to maintain consistency among the claims. Claims 2, 3, 13, 21, and 22 have been cancelled.

As discussed herein, the claim amendments are fully supported throughout the Specification. No new subject matter has been added by this amendment.

Rejections under § 112

In the Office Action, Claims 12-19 were rejected under § 112, second paragraph. Applicants wish to express their gratitude for the opportunity to clarify these aspects of the claims. With regards to Claims 12 and 16, the claims have been amended to recite the limitation that a one or more host are being referred to, and that at least a portion of these hosts move through the grids. With regards to Claims 14 and 15, Applicants have made amendments that clarify the subject matter being claimed. Accordingly, Applicants respectfully submit that any rejection of Claims 12-19 under § 112 is now moot and respectfully request withdrawal of these rejections.

Aspects of the Claims

Prior to discussing the cited references, it may be useful to reiterate certain aspects of the claims, such as the functioning of the ghost software agents as the host software operates in the various grids within the grid environment. The claimed invention provides systems and methods for testing applications within a grid environment. For

example, a method, typified by Claim 1, can include identifying a host operating in a grid of a grid environment. A passive ghost agent within the same grid can then be associated with the host, where the passive ghost agent is configured to replicate and record the actions of the host, but does cause a response from the grid. The host can then execute the actions within a grid, which can be recorded by the passive ghost agent. Finally, after the host moves to another grid in the grid environment, the passive ghost agent can also be configured to automatically move to the other grid, following the host in order to replicate and record actions of the host in other grids. The data recorded by the passive ghost agents can then be used to generate test inputs for a subsequent testing phase using passive and/or active ghost agents operating in a testing segment of the grid environment.

The Claims Define Over the Cited References

As previously stated, independent claims were rejected as being anticipated by Boukobza or as being unpatentable over Boukobza in view of Putzolu. Boukobza discloses a process for monitoring a plurality of object types of a plurality of nodes using a management node in an information system. Boukobza further discloses monitoring the various nodes by using the management node to install a single autonomous agent in a node to be monitored, where the autonomous agent can be configured to monitor software objects, conditions, parameters, and actions in the particular node in which the agent is installed. (See, e.g., Abstract, Col. 2, Lines 21-38) The management node can then retrieve data collected by the various autonomous agents to perform further analysis of the performance of each node. (See, e.g., Col. 6, Lines 30-34)

It is asserted in the Office Action that the ghost agent of the present invention and the autonomous agent of Boukobza provide equivalent functionality. Applicants respectfully disagree. Boukobza fails to disclose or suggest a ghost agent being associated with each host software object. Boukobza instead discloses a single autonomous agent being associated with a single node, grid, or device, not a single host

software object traversing the grid environment. (See, e.g., Col. 2, lines 20-37.) The autonomous agent of Boukobza is provided to allow decentralized control of individual nodes, allowing each node to continuously and independently respond to changes in system performance and resources without having to regularly rely on a central system or external resources. (See, e.g., Col. 2, lines 39-55). Therefore, because agents in Boukobza are limited to a single node, they cannot provide debugging for host software objects as they traverse a grid environment.

In contrast, the claims explicitly recite a passive ghost agent that associates with an individual host software object, not with a node, grid, or device. Furthermore this ghost agent moves with the associated host software object and records the actions of the associated host as the host traverses the grid environment. Thus, potentially, a single ghost software object in the claimed invention could record every action of an associated host software object, regardless of which node or grid the actions of the associated host software object occur in.

In the Office Action, on page 8, it is acknowledged that Boukobza does not explicitly disclose moving ghost agents within the grid environment. However, the Office Action asserts that such a capability is disclosed by the mobile agents disclosed in Putzolu. Applicants respectfully disagree.

Putzolu discloses a method of providing agents that move among network devices to manage the operation of the devices in the network. However, Putzolu still fails to disclose associating with and copying the movement of another software object, as recited in the claims. Putzolu instead discloses that agents move in response to demands on device resources in order to travel to the appropriate network device and make any necessary adjustments to improve network performance, not for testing software objects. (See, e.g., col. 11, lines 49-53). In other words, the mobile agents in Putzolu are not associated with any software objects. At most, such agents are associated with a node, as the agent can be configured to reside at a particular node according to a user command.

(See, e.g., col. 5, lines 9-19). However, nowhere does Putzolu disclose that such agents can be associated with another software object or that they can follow another software object automatically. In Putzolu, movement is instead based on responding to commands or problems in the network. For example, an agent in Putzolu, would not travel along with software objects arriving at a node at which the agent is currently located. Instead, the agent of Putzolu would travel through the grid independently, attempting to ascertain the source of software objects arriving at the node and to make any adjustments necessary to improve performance. However, such movement is independent of the subsequent destination of a software object arriving at the original node. As such, the agent of Putzolu cannot replicate and record actions for debugging or other purposes, as agents and software objects in Putzolu do not travel together.

In contrast, the claims expressly recite that a passive ghost agent associates with a specific software host object and follows the host object as it leaves the node and travels to other nodes so as to record the host's actions for purposes of generating test input data.

Boukobza is directed to continuously monitoring and evaluating individual machine or node performance using one or more autonomous agents. Putzolu is directed to managing performance of network nodes by using agents that can travel from node to node and make needed adjustments. However, neither Putzolu nor Boukobza discloses that the agents would be bound to software objects. Allowing the autonomous agent to move from node to node, as suggested in Putzolu, only allows the agent to travel among nodes and make adjustments to devices based on current device and network conditions. However, such a combination still does not provide for replicating and recording actions of host software objects traversing the grid environment in order to debug such software objects, as recited in the claims.

Accordingly, Boukobza and Putzola, alone or in combination with any reference of record, fail to teach, suggest, or render obvious every feature recited in independent claims, as amended. Therefore, Applicants respectfully submit that the independent

claims, as amended, each define over the cited references. Furthermore, as the remaining dependent claims each depend from one of independent claims while reciting additional features, Applicants submit that the remaining dependent claims likewise define over the prior art.

CONCLUSION

Applicants believe that this application is now in full condition for allowance, which action is respectfully requested. Applicants request that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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